UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R037XA003NM

Site Name: Limy

Precipitation or Climate Zone: 7 to 10 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This upland site occurs on river terraces, plateaus, and mesas. There are occasional drainageways. Slopes are generally from 0 to 8 percent; however; the river terrace slopes may be 40 percent. Elevations range from 4,800 to 6,400 feet above sea level.

Land Form:

1. Stream terrace
2. Mesa
3.

Aspect:

1. N/A
2.
3.

	Minimum	Maximum
Elevation (feet)	4,800	6,400
Slope (percent)	0	40
Water Table Depth (inches)	N/A	N/A

Flooding:	**Minimum**	**Maximum**
Frequency	N/A	N/A
Duration	N/A	N/A

Ponding:	**Minimum**	**Maximum**
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

This site has an arid, mild, dry climate with distinct seasonal temperature variations and large annual and diurnal temperature changes.

Mean annual precipitation varies from 7 to 10 inches. Deviations of 4 inches or more are quite common. Distribution is 65 percent during the native plant growth period, which is from April through September. May and June are the dry months. During July, August, and September, 3.5 inches of precipitation influences the presence and production of warm-season plants. Late fall and winter moisture is conducive to the production of cool-season plants, which usually begin growth in March and end with plant maturity and seed dissemination. This usually takes place in the early part of June when the moisture deficiency and warmer temperatures occur. The Gulf of Mexico is the principal source of moisture for summer precipitation, which is characterized by brief afternoon thunderstorms. Winter moisture occurs as light rain or snow.

Temperatures vary from a mean monthly of 75 degrees F in July to 27 degrees F in January. From a maximum of 106 degrees F to a minimum of 35 degrees F below zero. The average last killing frost in the spring is May 8, and the first killing frost in the fall is October 10. The frost-free season is approximately 160 days. Temperatures are conducive for native grass and forb growth from April through September. Maximum shrub growth occurs in the spring months.

The wind blows most frequently from an easterly direction, however, a majority of the stronger winds (10 to 25 miles per hour) are from a westerly quadrant. Spring is the windiest season. Average hourly wind velocities are near 6 miles per hour. Spring and summer winds increase transpiration rate of native plants and rapidly dry the surface soil. Small soil particles are often displaced by the wind near the soil surface and often results in structural damage to native plants, especially young seedlings.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	114	151
Freeze-free period (days):	143	177
Mean annual precipitation (inches):	7	10

Monthly moisture (inches) and temperature (^{0}F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.46	.70	12.7	43.1
February	.46	.74	18.4	50.8
March	.54	.70	22.7	60.4
April	.42	.56	29.3	70.0
May	.38	.62	37.6	79.5
June	.29	.68	46.6	90.0
July	.68	1.46	54.8	94.6
August	.79	1.83	53.1	91.8
September	.80	1.13	44.3	85.6
October	.78	1.30	31.7	72.4
November	.52	.68	20.9	56.3
December	.54	.64	12.8	46.6

Climate Stations:

					Period		
Station ID	291647	Location	Chaco Canyon Natl. Monument, NM	From:	06/01/22	To:	12/31/01
Station ID	293134	Location	Farmington 3NE, NM	From:	1971	To:	2000
Station ID	293340	Location	Fruitland 2E, NM	From:	01/01/14	To:	12/31/01
Station ID	296465	Location	Otis, NM	From:	02/01/14	To:	12/31/01
Station ID	298284	Location	Shiprock, NM	From:	08/01/26	To:	12/31/01

INFLUENCING WATER FEATURES

Narrative:

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

The soils in this site are deep and well drained. The surface layer is a brown calcareous loam, sandy loam, or gravelly loam about three inches thick. The subsoil is a brown calcareous loam, clay loam, or fine sandy loams about 10 inches thick. The upper substratum is a pinkish white very gravelly clay loam or white sandy clay loam, clay loam, or loam ranging from 16 to 39 inches thick. It has a calcic horizon. The lower substratum is a loose gravelly or very gravelly sandy loam, sandy loam, loam or clay loam ranging from 19 to 53 inches thick.

They formed in calcareous eolian and alluvial material derived from sandstone and shale. Water intake rate is moderate to moderately rapid. Available water-holding capacity ranges from 4.5 to 9.5 inches in a 5-foot profile. Potential for wind and water erosion is low to medium.

Parent Material Kind: Marine deposits
Parent Material Origin: Mixed – calcareous

Surface Texture:

1. Loam
2. Sandy loam
3. Gravelly loam

Surface Texture Modifier:

1. Gravel
2.
3.

Subsurface Texture Group: Loamy
Surface Fragments <=3" (% Cover): 15 to 35
Surface Fragments >3" (% Cover): N/A

Subsurface Fragments <=3" (%Volume): >60
Subsurface Fragments >=3" (%Volume): 35 to 60

	Minimum	Maximum
Drainage Class:	Well	Well
Permeability Class:	Moderately slow	Moderately rapid
Depth (inches):	53	>72
Electrical Conductivity (mmhos/cm):	0.00	8.00
Sodium Absorption Ratio:	N/A	N/A
Soil Reaction (1:1 Water):	7.9	8.4
Soil Reaction (0.1M CaCl2):	N/A	N/A
Available Water Capacity (inches):	3	12
Calcium Carbonate Equivalent (percent):	N/A	N/A

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label**: HCPC

Plant Community Narrative: Historic Climax Plant Community
The vegetative aspect of this site is grassland characterized by short and mid-grasses. Shrubs and perennial forbs are a relatively small component of the plant community. Annual forbs are always present in varying amounts according to the current growing conditions.

Canopy Cover:	
Trees and shrubs	8 %
Ground Cover (Average Percent of Surface Area).	
Grasses & Forbs	15
Bare ground	42
Surface gravel (Aton gravelly soil)	20
Surface cobble and stone (Aton gravelly soil)	5
Litter (percent)	10
Litter (average depth in cm.)	1

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	195	293	390
Forb	45	68	90
Tree/Shrub/Vine	60	90	120
Lichen			
Moss			
Microbiotic Crusts			
Total	300	450	600

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	HENE5 HECO26	New Mexico Feathergrass Needleandthread	90 – 113	90 – 113
2	ACHY	Indian Ricegrass	68 – 90	68 – 90
3	PLJA	Galleta	23 – 45	23 – 45
4	BOGR2	Blue Grama	23 – 45	23 – 45
5	ARIST	Threeawn spp.	23 – 45	23 – 45
6	SPCR SPCO4	Sand Dropseed Spike Dropseed	23 – 45	23 – 45
7	SPAI	Alkali Sacaton	45 – 68	45 – 68

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
8	ERIOG PLPA2 DESO2 ASCLE SENEC	Buckwheat spp. Wooly Indianwheat Tansymustard Milkweed spp. Groundsel spp.	14 – 23	14 – 23

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
9	ATCA2	Fourwing Saltbush	14 – 23	14 – 23
10	EPVI	Mormon-tea	14 – 23	14 – 23
11	KRLA2	Winterfat	45 – 68	45 – 68
12	CHVI8	Douglas Rabbitbrush	5 – 14	5 – 14
13	ARTR2 ARNO4	Big Sagebrush Black Sagebrush	14 – 23	14 – 23
14	GUSA2 YUGL	Broom Snakeweed Small Soapweed	14 – 23	14 – 23

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Additional plants which usually grow on this site in varying amounts, dependent on current growing season conditions, are: slim tridens, fluffgrass, sixweeks fescue, annual brome grasses, sixweeks grama, ring muhly, Russian thistle, cholla cacti, pricklypear cacti and Rocky Mountain beeplant.

Plant Growth Curves

Growth Curve ID **0903NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Mixed mid/short-grassland with minor shrub and forb components.**

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	5	7	10	10	25	30	10	3	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This range site provides habitats which support a resident animal community that is characterized by pronghorn antelope, coyote, desert cottontail, white-tailed prairie dog, deer mouse, raven, scaled quail, mourning dove, red-spotted toad, side-blotched lizard, and prairie rattlesnake.

The burrowing owl is a summer resident. While not resident, mule deer will move out of adjacent habitats to feed in these ecological sites.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations	
Soil Series	**Hydrologic Group**
Atrac	B
Avalon	B
Blackston	B
Aton	?
Nageesi	?

Recreational Uses:

No Data

Wood Products:

No Data

Other Products:

Grazing:

This site is suitable for grazing use by cattle, sheep, horses, burros, antelope, deer, and small herbivorous animals. Various birds use this site for food and shelter.

Under the pressure of uncontrolled grazing, the potential plant community deteriorates; there is a marked increase in the amount of shrubs, forbs, cacti, and yucca. Juniper may invade the site.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	7.0 – 14.0
75 – 51	9.0 – 18.0
50 – 26	11.0 – 22.0
25 – 0	14.0+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Plant Preference by Animal Kind:

Animal Kind: Livestock
Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Blue Grama	Bouteloua gracilis	EP	D	D	D	D	P	P	P	P	P	D	D	D
Alkali Sacaton	Sporobolus airoides	EP	D	D	D	D	D	P	P	P	U	U	U	D
Slim Tridens	Tridens muticus	EP	U	U	U	U	U	U	D	D	D	U	U	U
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U

Animal Kind: Livestock
Animal Type: Horses

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Blue Grama	Bouteloua gracilis	EP	D	D	D	D	P	P	P	P	P	D	D	D
Alkali Sacaton	Sporobolus airoides	EP	D	D	D	D	D	P	P	P	U	U	U	D
Slim Tridens	Tridens muticus	EP	U	U	U	U	D	D	U	U	U	U	U	U
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U

Animal Kind: Livestock
Animal Type: Sheep

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	U	U	U	U
New Mexico Feathergrass	Hesperostipa	EP	D	D	P	P	P	D	D	D	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Indian Ricegrass	Achnatherum hymenoides	EP	P	P	P	P	P	D	D	D	D	D	D	P
Blue Grama	Bouteloua gracilis	EP	D	D	D	D	P	P	P	P	P	D	D	D
Fourwing Saltbush	Atriplex canescens	L/S	P	P	P	P	P	D	D	D	D	D	D	P
Winterfat	Krascheninnikovia lanata	L/S	P	P	P	P	P	P	P	P	P	P	P	P
Sand Dropseed	Sporobolus cryptandrus	EP	U	U	U	D	D	D	U	U	U	U	U	U
Slim Tridens	Tridens muticus	EP	U	U	U	U	U	U	D	D	D	U	U	U

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites:

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:

State: New Mexico

County: San Juan

Latitude:

Longitude:

Township: 29 N

Range: 14 W

Section: 33

Is the type locality sensitive? Yes ☐ No ☐

General Legal Description: **A typical pedon of Nageesi sandy loam in San Juan County, New Mexico, south of Farmington, 1,600 feet north, 264 feet west of the southwest corner of section 33, T. 29 N., R. 14 W.**

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the San Juan River Valley, Mesas and Plateaus 37 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys : San Juan, McKinley.

Characteristic Soils Are:	
Aton	Nageesi
Other Soils included are:	
Atrac	Avalon
Blackston	

Site Description Approval:

Author	Date	Approval	Date
Don Sylvester	03/06/79	Don Sylvester	03/06/79

Site Description Revision:

Author	Date	Approval	Date
Elizabeth Wright	07/08/02	George Chavez	2/12/03